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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,307	07/25/2003	Qi Meng	QMFLT/03	1934

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EXAMINER	
FORTUNA, ANA M	

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,307	MENG, QI	
	Examiner	Art Unit	
	Ana M. Fortuna	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 810 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (6,524,477)(hereinafter U S Patent '477) in view of Degen et al (4,664,683)(hereinafter US Patent 4,664,683). Patent '477 discloses a filter including a filter cup (60, Fig.2) made form a composition including activated carbon and powdered granular polymers, in particular UHMWPE, High density Polyethylene. (HDPE), Nylon 6 (polyamide), and mixtures thereof (abstract, column 5, last paragraph, through column 6, lines 1-8, and lines 39-68 through column 7, lines 1-9). Patent '477 discloses using some of the polymer as binders while other provide structure to the filter (column 6, lines 45-53). Patent '477 fails to disclose the filter composition including low density polyethylene (LDPE).

Patent '683 discloses a filter composition including carbon articles and powdered polymeric binders (abstract). The polymeric binders, including polyethylene polymer powders of high and low density are suggested (column 5, lines 13-59, column 6, third paragraph, and volume 11, lines 12-18). As to claims 1-2 it would

have been obvious to one skilled in the art at the time the invention was made to have a filter composition including ultrahigh polyethylene, high density polyethylene as binder, and further use a mixture of low and high molecular weight polyethylene as binders for the ultrahigh molecular weight particles, and /or the carbon particles, as suggested by '683 for producing a flexible filter (column 5, lines 49-59).

As to claim 3, reference '477 teaches the composition including from 30 to 50 % of the carbon, the percentages of the polyethylene polymer is not disclosed. Patent '683 suggest a composition containing about 0.I5 to about 20 % by weight of a polymeric binding material. The total amount of binding material in the composition of claim 3 is lower than 20 %. It would have been obvious to one skilled in the art at the time the invention was made to adjust the composition of the binder by adding a mixture of polyethylene binders, e.g. low density, high density and ultrahigh molecular weight polyethylene, as suggested as discussed by the references above. The particle size of the binders with an article size between 8-30 microns is suggested by '683 (column 13, lines 1-20). It would have been obvious to one skilled in the art at the time the invention was made to select conventional binders including the suggested particle size. The size can be also selected depending on the final desire filter structure, e.g. porosity, and particles content, and based temperature/pressure process conditions. It would have been obvious to one skilled in the art at the time the invention was made to select large particle size and low binder melting temperature to produce a large pore filter material.

Regarding claims 8-10, the process of making the filter is disclosed, e.g. mixing the components, molding and applying heat and pressure, removing from the mold and cooled in water, see patent '477 (column 14, lines 55-65, and column 15, lines 1-6). Patent '683 also discloses mixing the components, placing in a container (mold), and applying heat and pressure (abstract), the temperature is suggested to be from 50 to degree F. above the Vicat softening temperature of the polymeric binding composition (column 8, lines 48-66). The binder including a Vicat Temperature of about 195 degree F. therefore, a 140 degree C can be applied when combined with pressure. It would have been obvious to one skilled in the art at the time the invention was made, to increase the temperature when pressure is not applied to the mixture, e.g. to facilitate the melting of the polymer binder(s), to apply a temperature depending on whether partial melting or a full melting of the polymer is desired. The cooling period r time is not disclosed, however, it would have been obvious to one skilled in the art at the time the invention was made to apply a cooling time as required for the applied temperature, since the cooling time does not seem to be critical to the process.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (6,524,477)(hereinafter U S Patent '477) in view of Degen et al (4,664,683)(hereinafter US Patent 4,664,683) as applied to claims 1-2 above, and further in view of Chen et al (5,928,588)(hereinafter Patent '588). Patent '477 and '683 fail to disclose the filter or filter activated carbon block including polyethylene oxide. Patent '588 suggest adding polyethylene oxide to a filter composition comprising activated carbon and binder polymers or fiber, e.g.

polyethylene (HDPE) binders, as green strength component (column 6, second paragraph, column 5 second and third paragraphs). It would have been obvious to one skilled in the art at the time the invention was made to ad polyethylene oxide to the mixture of filter forming components to provided strength to the filter, as suggested in '588.

4. Claims 5, 6, 7, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (6,524,477)(hereinafter U S Patent '477) in view of Degen et al (4,664,683)(hereinafter US Patent 4,664,683). Patent '477 applied to claim 1-3 above above, and further in view of Hughes (US Patent 6,861,002). References '477 and '683 fail to disclose adding alkali to the filter composition. Patent 002 teahes a carbon block composition including carbon, a mixture of carbon and metal hydroxides (alkali) and polymeric binders, e.g. LDPE, LLDPE, HDPE and polyethylene copolymers, the filter can be used in chemical conversion and filtration (abstract, and detailed description section). It would have been obvious to one skilled n the art at the time the invention was made to provide the alkali or metal hydroxide to the carbon filters of '477 or '683, to provide reactive or conversion properties to the resulting filter or filter block, as suggested in '002. Ading salts is also suggested by '002, e.g. metal carbonate (abstract).

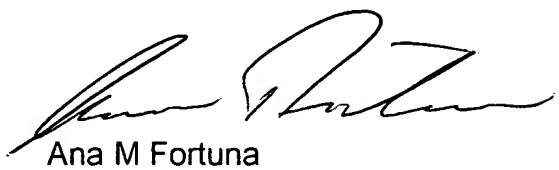
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference 5,346,924 discloses polyethylene binders for binding particle, e.g. ion exchange material; 4,925,880 discloses porous articles including a composition having UMWPE and PE binder; 4753,728 discloses carbon block composition including activated carbon and HMWPE, processes at

temperature between 175 and 200 degree C, conventional binders are disclosed (Table II). 5,882,517 also discloses compositions including carbon, binders (polyethylene fibers or particles. Reference 4,733,887 discloses the effect of particles size in filter porosity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF
August 30, 2005